

Listing of Claims

1. (Currently Amended) A computer-implemented method comprising:
in response to obtaining first data for replication to a secondary storage area,
causing an indicator to be set for a first location, wherein
the first data are stored in the first location of a first storage area, and
the indicator indicates that the first data are unsynchronized with corresponding
data in a corresponding location of the secondary storage area; and
causing an entry to be added to a list of entries for the first location, wherein
each entry in the list is related to an update to data in the first location, and
the list can be used to reset the indicator for the first ~~location~~ location;
writing a record to a transaction log, wherein
the record comprises the first location;
in response to receiving an acknowledgement that the first data have been received at the
secondary storage area,
causing the first location to be removed from each active transaction of at least one
active transaction in the transaction log; and
if one active transaction of the at least one active transaction in the transaction log is
completed,
writing a second record to the transaction log indicating that the one active
transaction is complete.
2. (Previously Presented) The method of claim 1 further comprising:
adding an update identifier to the entry.
3. (Canceled)
4. (Currently Amended) The method of claim 1 further comprising:
in response to receiving ~~[[an]]~~ the acknowledgement that the first data have been received at the
secondary storage area,
causing the entry to be removed from the list of entries for the first location.
5. (Canceled)

6. **(Currently Amended)** The method of claim ~~[[5]]~~ 1, further comprising:
in response to the writing the second record to the transaction log, freeing space in the
transaction log previously used by the one active transaction.

7. **(Previously Presented)** The method of claim 4 further comprising:
in response to removing the entry from the list of entries for the first location,
determining whether the list of entries for the first location is empty; and
if the list of entries for the first location is empty,
resetting the indicator for the first location.

8. **(Previously Presented)** The method of claim 4 further comprising:
in response to removing the entry from the list of entries for the first location,
determining whether the list of entries for the first location is empty, and
if the list of entries for the first location is empty,
causing the indicator for the first location to be reset.

9. **(Previously Presented)** The method of claim 4 wherein
the causing the entry to be removed from the list of entries for the first location comprises
removing the entry from the list of entries for the first location.

10. **(Previously Presented)** The method of claim 1 wherein
the causing the indicator to be set comprises setting the indicator.

11. **(Previously Presented)** The method of claim 1 wherein
the causing the entry to be added to the list of entries for the first location comprises adding the
entry to the list of entries for the first location.

12. **(Currently Amended)** The method of claim 1 wherein
if ~~[[an]]~~ the acknowledgement that the first data have been received at the secondary storage
area is not received,
causing the indicator to be written to a persistent storage area.

13. **(Original)** The method of claim 12 further comprising:
using the indicator to synchronize the first data in the first location of the first storage area with
the corresponding data in the corresponding location of the secondary storage area.

14. **(Currently Amended)** A system comprising:
 causing means for causing an indicator to be set for a first location in response to obtaining first data for replication to a secondary storage area, wherein
 the first data are stored in the first location of a first storage area, and
 the indicator indicates that the first data are unsynchronized with corresponding data in a corresponding location of the secondary storage area; **[[and]]**
 second causing means for causing an entry to be added to a list of entries for the first location, wherein
 each entry in the list is related to an update to data in the first location, and
 the list can be used to reset the indicator for the first ~~location~~ **location**;
writing means for writing a record to a transaction log, wherein
the record comprises the first location;
third causing means for causing the first location to be removed from each active transaction of at least one active transaction in the transaction log in response to receiving an acknowledgement that the first data have been received at the secondary storage area; and
second writing means for writing a second record to the transaction log indicating that one active transaction is complete if the one active transaction of the at least one active transaction in the log is completed.

15. (Canceled)

16. **(Currently Amended)** The system of claim **[[15]] 14** further comprising:
fourth ~~[[third]]~~ causing means for causing the entry to be removed from the list of entries for the first location in response to receiving **[[an]] the** acknowledgement that the first data have been received at the secondary storage area.

17. (Canceled)

18. **(Currently Amended)** The system of claim **[[1]] 16** further comprising:
 determining means for determining whether the list of entries for the first location is empty in response to removing the entry from the list of entries for the first location; and
 resetting means for resetting the indicator for the first location if the list of entries for the first location is empty.

19. (Currently Amended) A computer-readable medium comprising:
 causing instructions to cause an indicator to be set for a first location in response to obtaining
 first data for replication to a secondary storage area, wherein
 the first data are stored in the first location of a first storage area, and
 the indicator indicates that the first data are unsynchronized with corresponding data in a
 corresponding location of the secondary storage area, and
 second causing instructions to cause an entry to be added to a list of entries for the first location,
 wherein
 each entry in the list is related to an update to data in the first location, and
 the list can be used to reset the indicator for the first ~~location~~ location;
writing instructions to write a record to a transaction log, wherein
the record comprises the first location;
third causing instructions to cause the first location to be removed from each active
transaction of at least one active transaction in the transaction log in response to
receiving an acknowledgement that the first data have been received at the
secondary storage area; and
second writing instructions to write a second record to the transaction log, wherein the
second record indicates that one active transaction of the at least one active
transaction in the transaction log is completed.

20. (Currently Amended) The computer-readable medium of claim 19 further
 comprising:
fourth ~~[[third]]~~ causing instructions to cause an update identifier to be added to the entry.

21. (Canceled)

22. (Currently Amended) The computer-readable medium of claim ~~[[21]]~~ 19 further
 comprising:
fourth ~~[[third]]~~ causing instructions to cause the entry to be removed from the list of entries for
 the first location in response to receiving ~~[[an]]~~ the acknowledgement that the first data
 have been received at the secondary storage area.

23. (Canceled)

24. (Previously Presented) The computer-readable medium of claim 22 further comprising:
determining instructions to determine whether the list of entries for the first location is empty in response to removing the entry from the list of entries for the first location; and
resetting instructions to reset the indicator for the first location if the list of entries for the first location is empty.

25. (Original) A computer system comprising:
a processor, and
the computer-readable medium of claim 19, wherein
the computer-readable medium is coupled to the processor.

26. (Currently Amended) A system comprising:
a processor; and
a memory, wherein the memory comprises:
a causing module to cause an indicator to be set for a first location in response to
obtaining first data for replication to a secondary storage area, wherein
the first data are stored in the first location of a first storage area, and
the indicator indicates that the first data are unsynchronized with corresponding
data in a corresponding location of the secondary storage area, and
a second causing module to cause an entry to be added to a list of entries for the first
location, wherein
each entry in the list is related to an update to data in the first location, and
the list can be used to reset the indicator for the first ~~location~~location;
a writing module to write a record to a transaction log, wherein
the record comprises the first location;
a third causing module to cause the first location to be removed from each active
transaction of at least one active transaction in the transaction log in
response to receiving an acknowledgement that the first data have been
received at the secondary storage area; and
a second writing module to write a record to the transaction log indicating that one
active transaction is complete if the one active transaction of the at least one
active transaction in the transaction log is completed.

27. (Previously Presented) The system of claim 26 further comprising:
a **fourth** ~~[[third]]~~ causing module to cause an update identifier to be added to the entry.

28. (Canceled)

29. (Currently Amended) The system of claim ~~[[28]]~~ **26** further comprising:
a **fourth** ~~[[third]]~~ causing module to cause the entry to be removed from the list of entries for the first location in response to receiving ~~[[an]]~~ **the** acknowledgement that the first data have been received at the secondary storage area.

30. (Canceled)

31. (Currently Amended) The system of claim ~~[[1]]~~ **29** further comprising:
a determining module to determine whether the list of entries for the first location is empty in response to removing the ~~update-identifier~~ **entry** from the list of entries for the first location; and
a resetting module to reset the indicator for the first location if the list of entries for the first location is empty.

32. (Previously Presented) The method of claim 1, wherein
a file system sets the indicator for the first location; and
the file system adds the entry to the list of entries for the first location.

33. (Previously Presented) The method of claim 4, wherein
a replicator receives the acknowledgement; and
the replicator causes a file system to remove the entry from the list of entries for the first location.

34. (Currently Amended) The method of claim ~~[[5]]~~ **1**, wherein
a replicator receives the acknowledgement;
the replicator causes a file system to remove the first location; and
the file system writes the second record indicating that the one active transaction is completed.

35. (Currently Amended) ~~The method of claim 7, wherein~~ **A method comprising:
causing an indicator to be set for a first location in response to obtaining first data for
replication to a secondary storage area, wherein**

the first data are stored in the first location of a first storage area, and
the indicator indicates that the first data are unsynchronized with corresponding
data in a corresponding location of the secondary storage area;
causing an entry to be added to a list of entries for the first location, wherein
each entry in the list is related to an update to data in the first location, and
the list can be used to reset the indicator for the first location;
determining whether the list of entries for the first location is empty in response to
removing the entry from the list of entries for the first location; and
resetting the indicator for the first location if the list of entries for the first location is
empty, wherein
the file system resets the indicator

36. (Previously Presented) The system of claim 14, wherein
a file system sets the indicator for the first location; and
the file system adds the entry to the list of entries for the first location.

37. (Previously Presented) The system of claim 16, wherein
a replicator receives the acknowledgement; and
the replicator causes a file system to remove the entry from the list of entries for the first
location.

38. (Currently Amended) The system of claim ~~[[17]]~~ 14, wherein
a replicator receives the acknowledgement;
the replicator causes a file system to remove the first location; and
the file system writes the second record indicating that the one active transaction is completed.

39. (Currently Amended) ~~The system of claim 18,~~ A system comprising:
causing means for causing an indicator to be set for a first location in response to obtaining
first data for replication to a secondary storage area, wherein
the first data are stored in the first location of a first storage area, and
the indicator indicates that the first data are unsynchronized with corresponding
data in a corresponding location of the secondary storage area;
second causing means for causing an entry to be added to a list of entries for the first
location, wherein

each entry in the list is related to an update to data in the first location, and
the list can be used to reset the indicator for the first location;
determining means for determining whether the list of entries for the first location is empty
in response to removing the entry from the list of entries for the first location; and
resetting means for resetting the indicator for the first location if the list of entries for the
first location is empty, wherein
the file system resets the indicator.

40. (Previously Presented) The computer-readable medium of claim 19, wherein
a file system sets the indicator for the first location; and
the file system adds the entry to the list of entries for the first location.

41. (Previously Presented) The computer-readable medium of claim 22, wherein
a replicator receives the acknowledgement; and
the replicator causes a file system to remove the entry from the list of entries for the first
location.

42. (Currently Amended) The computer-readable medium of claim ~~[[23]]~~ 19, wherein
a replicator receives the acknowledgement;
the replicator causes a file system to remove the first location; and
the file system writes the second record indicating that the one active transaction is completed.

43. (Previously Presented) The computer-readable medium of claim 24, wherein
the file system resets the indicator.

44. (Previously Presented) The system of claim 26, wherein
a file system sets the indicator for the first location; and
the file system adds the entry to the list of entries for the first location.

45. (Previously Presented) The system of claim 29, wherein
a replicator receives the acknowledgement; and
the replicator causes a file system to remove the entry from the list of entries for the first
location.

46. (**Currently Amended**) The system of claim ~~[[30]]~~ 26, wherein
a replicator receives the acknowledgement;
the replicator causes a file system to remove the first location; and
the file system writes the second record indicating that the one active transaction is completed.

47. (Previously Presented) The system of claim 31, wherein
the file system resets the indicator.